

WHAT IS CLAIMED IS:

1. An exposure apparatus using a discharge lamp as a light source, comprising a sensor for recognizing the type of discharge lamp mounted in a holder or
5 recognizing whether a discharge lamp has been mounted in said holder.
2. The apparatus according to claim 1, further comprising means for setting at least one of optical conditions, power-source conditions and cooling
10 conditions, which conform to the type of discharge lamp mounted, based upon the recognition made.
3. The apparatus according to claim 2, further comprising means for changing optical conditions of an optical illuminating unit in dependence upon the type of
15 discharge lamp.
4. The apparatus according to claim 3, wherein the optical conditions are changed by adjusting a zoom lens of the illuminating optical unit in accordance with the type of discharge lamp.
- 20 5. The apparatus according to claim 4, wherein adjusting said zoom lens optimizes the shape of the image of an arc produced by the discharge lamp.
6. The apparatus according to claim 2, further comprising means for changing the power-source
25 conditions by setting allowable power to the discharge lamp in dependence upon the type of discharge lamp.

7. The apparatus according to claim 2, further comprising means for changing discharge-lamp cooling performance in dependence upon the type of discharge lamp.

5 8. The apparatus according to claim 7, further comprising means for cooling the mounted discharge lamp by a gas.

9. The apparatus according to claim 1, wherein the sensor is provided in the vicinity of said holder and
10 senses a characterizing portion formed on the discharge lamp held by said holder.

10. The apparatus according to claim 9, wherein said sensor senses said characterizing portion optically, magnetically, mechanically or through use of pressure.

15 11. The apparatus according to claim 9, wherein said characterizing portion is a groove or hole formed in the discharge lamp in the vicinity of the location at which said discharge lamp is held by said holder.

12. An exposure apparatus using a discharge lamp as a
20 light source, comprising means for setting at least one of optical conditions, power source conditions and cooling conditions in dependence upon the type of discharge lamp mounted.

13. The apparatus according to claim 12, further
25 comprising means for allowing an operator to input the type of discharge lamp mounted or for recognizing the

type of discharge lamp automatically.

14. The apparatus according to claim 12, further comprising memory means for storing types of discharge lamps and setting conditions suited thereto, wherein
5 optical conditions, power source conditions and cooling conditions conforming to the type of discharge lamp are set based upon content of said memory means.

15. The apparatus according to claim 12, wherein optical conditions of an illuminating optical unit are
10 changed in dependence upon the type of discharge lamp.

16. The apparatus according to claim 15, wherein the optical conditions are changed by adjusting a zoom lens of the illuminating optical unit in accordance with the type of discharge lamp.

15 17. The apparatus according to claim 16, wherein adjusting said zoom lens optimizes the shape of the image of an arc produced by the discharge lamp.

18. The apparatus according to claim 12, further comprising means for changing the power source
20 conditions by setting allowable power to the discharge lamp in dependence upon the type of discharge lamp.

19. The apparatus according to claim 12, further comprising means for changing discharge-lamp cooling performance in dependence upon the type of discharge
25 lamp.

20. The apparatus according to claim 19, further

comprising means for cooling the mounted discharge lamp by a gas.

21. The apparatus according to claim 1, further comprising means for inhibiting firing of the discharge lamp and/or for issuing a warning in a case where the type of discharge lamp cannot be recognized.

22. The apparatus according to claim 1, further comprising means for inhibiting application of voltage and/or for issuing a warning in a case where a discharge lamp has not been mounted in the mounting portion.

23. The apparatus according to claim 12, further comprising means for inhibiting firing of the discharge lamp and/or for issuing a warning in a case where the type of discharge lamp cannot be recognized.

24. The apparatus according to claim 12, further comprising means for inhibiting application of voltage and/or for issuing a warning in a case where a discharge lamp has not been mounted in the mounting portion.

25. A device manufacturing method using the exposure apparatus according to claim 1, which comprises steps of:

preparing the exposure apparatus described in claim 1; and

performing exposure using said exposure apparatus.

26. An exposure method using a discharge lamp as a light source, comprising steps of:

recognizing the type of discharge lamp; and
automatically setting at least one of optical
conditions, power source conditions and cooling
conditions based upon the recognition made.

5 27. The method according to claim 26, further
comprising a step of inhibiting firing of the discharge
lamp and/or of issuing a warning in a case where the
type of discharge lamp cannot be recognized.

10 28. The method according to claim 26, further
comprising a step of sensing whether a discharge lamp
has been mounted; and

inhibiting firing of the discharge lamp and/or of
issuing a warning in a case where a discharge lamp has
not been mounted.

15 29. A discharge lamp used as a light source of the
exposure apparatus described in claim 1, wherein said
discharge lamp has a mark or shape capable of being
recognized by a sensor when the discharge lamp is used
in said exposure apparatus.

20 30. A discharge lamp used as a light source of the
exposure apparatus described in claim 12, wherein said
discharge lamp has a mark or shape capable of being
recognized by a sensor when the discharge lamp is used
in said exposure apparatus.

25 31. A discharge lamp used as a light-emitting source of
a light source device, said discharge lamp having a mark

or shape capable of being recognized by a sensor when the discharge lamp is used in said device.

32. The discharge lamp according to claim 31, wherein said mark or shape uses any of a three-dimensional
5 shape, planar shape, pattern, coloring, reflectivity and audio.

33. The discharge lamp according to claim 31, wherein said discharge lamp is formed to have a groove or hole capable of being sensed by a sensor provided in the
10 vicinity of a holder of said discharge lamp.

34. The discharge lamp according to claim 31, wherein the mark or shape with which said discharge lamp is provided functions to achieve a plurality of applications.

15 35. The discharge lamp according to claim 34, wherein the plurality of applications are identifying the type of discharge lamp, identifying whether a discharge lamp is mounted or not, or cooling the discharge lamp.